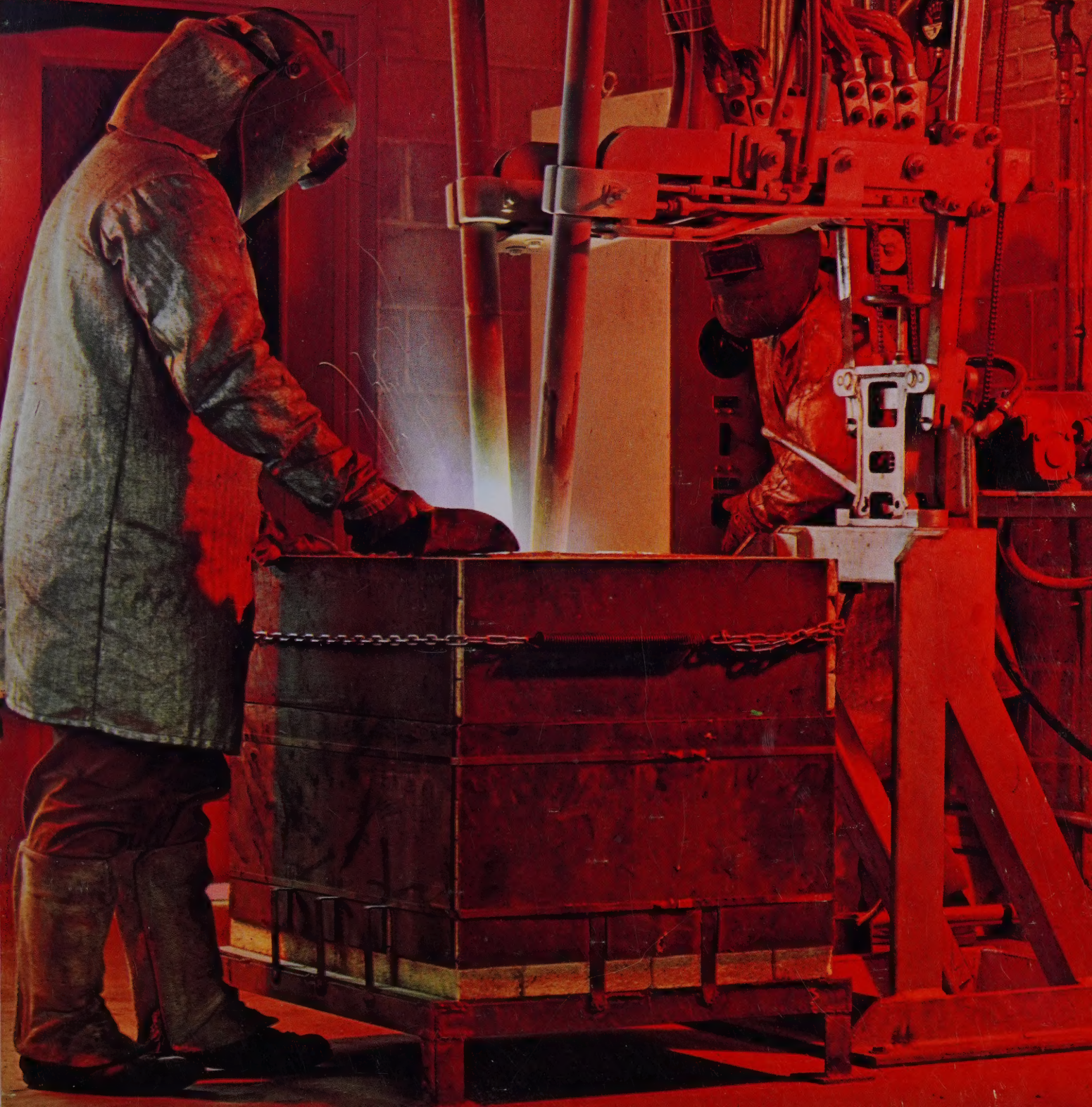


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# GENERAL REFRACTORIES COMPANY / ANNUAL REPORT 1966





# 66

**The cover** features a laboratory model of an electric arc furnace fusing grains of refractory material at General Refractories Company's laboratory in Baltimore, Maryland.

# GENERAL REFRACTORIES COMPANY/ANNUAL REPORT

## DIRECTORS

Harry T. Graham  
Otto E. Griesser  
Harold H. Hammer  
John E. Hartshorn  
Arthur F. Kroeger  
William T. Marx<sup>1</sup>  
Aksel Nielsen  
David Remer  
Joseph G. Solari<sup>2</sup>  
William B. Walker

<sup>1</sup>Resigned 12/31/66

<sup>2</sup>Elected 1/1/67

## OFFICERS

Harry T. Graham, President  
John E. Hartshorn, Executive Vice President  
Herbert F. Greene, Vice President—Group Executive  
Ward M. Troutman, Vice President—Commercial  
Joseph P. Rhein,<sup>1</sup> Vice President—Finance  
George R. Rittenhouse, Secretary and Treasurer  
Frank J. Keenan, Controller  
Lucille C. Nobs, Assistant Secretary

<sup>1</sup>Elected 1/10/67

## DIVISION EXECUTIVES

Cranson B. Shelley, United States Division  
Wolfgang Wick, European Division  
Herbert F. Greene, Western Hemisphere Division  
Joseph E. Moran, Grefco Mining & Mineral Products Group

## REGISTRARS

Bankers Trust Company  
16 Wall Street  
New York, N.Y. 10015

The First Pennsylvania Banking & Trust Company  
15th & Chestnut Streets  
Philadelphia, Pa. 19101

## DIVIDEND DISBURSING AGENT

Philadelphia National Bank  
Broad and Chestnut Streets  
Philadelphia, Pa. 19107

## TRANSFER AGENTS

Chemical Bank New York Trust Company  
100 Broadway  
New York, N.Y. 10015

Philadelphia National Bank  
Broad and Chestnut Streets  
Philadelphia, Pa. 19107

General Refractories Company  
General Office—4520 Locust Street  
Philadelphia, Pa. 19102  
Phone: 215/Pennypacker 5-2000





# GENERAL REFRACTORIES COMPANY/ANNUAL REPORT



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## HIGHLIGHTS

	1966	1965	1964	1963
Revenues	\$124,396,759	\$120,082,288	\$113,127,679	\$102,980,182
Net Income	4,384,920	6,921,409	6,095,397	4,306,862
Net Income Per Share (1)	1.16	1.83	1.61	1.14
Dividends Per Share (2)	.80	.80	.75	.65
Capital Expenditures	12,926,082	10,467,920	6,064,148	3,315,159
Number of Shareholders	7,297	7,557	8,453	8,999
Number of Employees	9,337	9,204	9,221	8,876
(1) Based upon outstanding shares of Company at December 31, 1966				
(2) Amounts per share paid by the Company				



## REPORT OF THE PRESIDENT

To the Shareholders of  
General Refractories Company



Harry T. Graham (left), President of General Refractories Company, and Dr. Wynn Laurence LePage, President of The Franklin Institute, discuss plans for expanding the Company's research capabilities at the Institute's new \$5,000,000 research laboratories in Philadelphia.

During 1966, a number of significant changes were made in the Company's operations which will contribute to short and long term growth. Research was greatly expanded to meet the technological challenges in the refractories and other fields. The largest number of new products in the Company's history was introduced. Management was reorganized into four administrative divisions to provide greater flexibility for growth into new fields. The newly acquired Grefco Mining and Minerals Products Group turned in a commendable performance. New systems and procedures introduced last year were absorbed into the administrative process. To increase capabilities in new product lines, reduce costs and modernize facilities, capital expenditures rose to a record \$12,926,082. It was a year of important progress!

### Sales and Earnings

Consolidated net revenues during 1966 advanced to an all time high of \$124,396,759 from \$120,082,288 in 1965. Earnings declined, for the first time in four years, to \$4,384,920 or \$1.16 per share in 1966 from \$6,921,409 or \$1.83 per share in 1965. The figures have been restated on a pooling of interests basis to include for both years the Mining and Minerals Products Group acquired in 1966.

Earnings were seriously affected by the economic slowdown in Europe, increases in costs of materials and supplies, intensive price competition in the United States, and new wage contracts both in the United States and Europe. The disastrous storms and flooding conditions in Europe greatly affected costs and



capital investments of your Company's mining operations in Austria.

### **Mining and Mineral Products Group**

At the Annual Meeting in April, the shareholders approved the acquisition of the Mining and Mineral Products Division of Great Lakes Carbon Corporation. In exchange for 842,000 shares of General Refractories common stock, your Company received the net assets of certain domestic companies, and the capital stock of certain subsidiaries and affiliates.

The net revenues of the Grefco Mining and Mineral Products Group for 1966 advanced to \$16,735,573 from \$15,484,381 in 1965, while earnings increased to \$1,584,118 from \$1,000,825 in 1965.

### **Growth**

Your Company's first step in diversification through acquisition has proved to be successful. The future prospects for the Grefco Mining and Mineral Products Group indicate a substantial growth both for the DICALITE filteraid products and for its PERMALITE building products line.

Increasing demand for filter-aids will be influenced not only by population growth but also by the increasing attention being paid to national problems of water supply and pollution. Sales of the PERMALITE line of building products grew despite the marked decline in construction activity in the United States.

Your Company will continue its program for growth through expansion, diversification and acquisitions.

### **Facilities**

The trend to high quality refractories will necessitate substantial changes, abandonment or other disposition of facilities and equipment not readily adaptable to future requirements. A survey of the Company's present productive assets has convinced the Board of Directors that the present reserve for this purpose will

not be adequate during the next few years. Accordingly, the Board has increased the reserve by \$3,800,000 net of estimated income tax benefits.

### **Changes in Directors and Officers**

The Board of Directors regretfully accepted the resignation of William T. Marx as a member of the Board of Directors effective December 31, 1966. Joseph G. Solari, President of Great Lakes Carbon Corporation, was elected to fill this vacancy in January to serve on the Board until the Annual Meeting of Shareholders in April.

In January 1967 Mr. Joseph P. Rhein was elected Vice President-Finance of your Company. Mr. Rhein served for a number of years with Price Waterhouse & Co., and for the past seven years with L. B. Foster Company of Pittsburgh, Pennsylvania. At the time of his resignation from the latter, he was serving as a Vice President and Director.

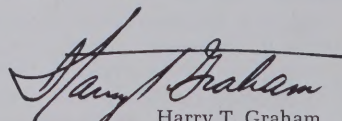
### **Appreciation**

The officers and Board of Directors express their appreciation to the loyal and capable employees of the Company. A special commendation is extended to the employees of the Grefco Mining and Mineral Products Group who performed extraordinarily well under the exceptional circumstances involved in the change of ownership.

### **Annual Meeting**

The Annual Meeting of the Stockholders of General Refractories Company will be held Friday, April 28, 1967 at 10:00 A.M., E.S.T., on the 24th Floor of the Packard Building, 15th and Chestnut Streets, Philadelphia, Pennsylvania. Shareholders of record at the close of business March 7, 1966 will be entitled to vote in person or by proxy at this meeting and are cordially invited to attend. Proxy statements and proxies are being mailed to all shareholders under separate cover.

By order of the  
Board of Directors  
February 23, 1967

  
Harry T. Graham  
President



## 'ROUND THE WORLD

### United States Division

**Construction Progress** of a new insulation board plant in South Brunswick Township, New Jersey, and a new perlite filter-aid plant in Tokyo, Japan, is reviewed by (l to r) John E. Hartshorn, Executive Vice President; Joseph E. Moran, Vice President and General Manager, Grefco Mining and Mineral Products Group; and Richard S. Funk, General Manager of its Building Products Division.



Refractory sales in the United States last year moved ahead of 1965 for the fourth year-to-year increase. Sales lagged in the first quarter as steel customers worked off inventories accumulated as a strike hedge in 1965.

Your Company's research and development capabilities were expanded considerably in 1966. The scope of this activity is reported on page 14 under "Research Points the Way."

A record number of new products was developed during the year to meet rapidly changing customer requirements. Included were a new Ferroxx<sup>®</sup> basic brick for the basic oxygen furnace, a family of direct bonded basic brick for open hearth and electric furnaces and for the copper industry, high alumina products for vacuum degassing and induction furnaces and improved silica brick for coke ovens.

The Company's equipment and process research program continues to add to the Company's operating efficiency.

At the Baltimore plant, the conversion of a tunnel kiln was started to produce a wider variety of advanced refractories. New plating equipment was also added. At Rockdale, Illinois, more than \$1,000,000 in building and equipment was added to expand production of the Ferroxx<sup>®</sup> line for the BOF. New automated equipment and television cameras to facilitate production were added to the calcining facility at Stevens Pottery, Georgia. A Bickley kiln capable of providing a greater variety of products was installed and a new brick press for the production of intricate refractory shapes was added to the Warren plant. The new tunnel kiln for processing direct bonded brick at Gary, Indiana went into operation during the year, and a new plating machine for these bricks was added. A changeover was made at the Morrisville, Pennsylvania plant for the manufacture of basic brick.

Increased costs of labor and materials offset improvements in productivity. This was further aggravated by tighter customer specifications and changes requiring higher cost raw materials without any appreciable price increases in many of the affected product lines.



**A Modern Tunnel Kiln** with auxiliary building and equipment to produce high-fired direct bonded brick and other advanced products was completed at Gary, Indiana during 1966.



## European Division

The economy of Europe experienced a further decline during 1966. In West Germany, steel plants operated at 74% of capacity as compared with 81% in 1965, and 91% in 1964. Other market areas were similarly affected. Construction in Europe also registered a marked decline. These basic industries represent major customers for your Company's products.

Adverse weather and flooding conditions in Carinthia, and Tyrol, Austria affected quarrying operations, as well as costs.

Largely as a result of these factors, sales and earnings of the European Division declined during 1966. In previous years the Division made larger contributions to the Company's overall earnings. To combat these situations certain programs are under way to advance sales and increase earnings.

Several new products were introduced, and others are being tested in customer furnaces. A line of magnesite based refractories similar to your Company's Ferrox<sup>®</sup> brand, was introduced commercially for basic oxygen furnaces in Europe. These products are winning acceptance in the newer and larger steel plants.

During 1966, the Division further developed its position in the European market for natural magnesite fettling material. This market has grown considerably in the last two years. Your Company has available large deposits of this material in Austria.

Production facilities for fused magnesite were doubled at the Austro-American Magnesite Company in Carinthia, Austria. More exotic and advanced form of refractories using fused magnesite grains are also being supplied to an established and growing market.

The research and development department at Radenthein moved into new improved facilities in 1966. This move will improve and expedite work in the research and quality control fields.

At Radenthein, a #360 IBM computer was installed to speed the business and accounting operations. This unit is notably increasing efficiency in these areas.



**The Radenthein plant** of the Austro-American Magnesite Company mines and processes magnesite from deposits located in Carinthia and Tyrol, Austria. It manufactures and sells basic refractories and Heraklith, a wallboard made with magnesite.



## Western Hemisphere Division

The Western Hemisphere Division serves industries in countries which are making extraordinary efforts to develop more prosperous economies. While there are differences in the present level of industrialization, and the rates of economic growth, there is a determination to move ahead as rapidly as possible.

Developments in the Latin American Common Market, and the increase in the gross national product in several countries provide evidence that progress is being made.

General Refractories Company is proud to be an early participant in the economic expansion of many of these countries.

### Canada

General Refractories Company of Canada, Ltd., a wholly owned subsidiary, posted increases in sales and earnings during 1966. This was accomplished even though there was a decline in the operating rates of steel and other basic industries. Strikes closed a number of Canadian steel mills for periods up to six and eight weeks. The economy of Canada, however, showed strengths in many areas.

This company continues to make improvements

in systems, operating procedures, and equipment. During the year, the sales force was expanded, and a new Bickley furnace added to provide greater flexibility of production. A broad line of refractories is available to a variety of industries.

### Mexico

Sales and earnings of General Refractories de Mexico, S. A. established an all-time high in 1966. Your Company owns a 50 percent interest in this affiliate.

Continued progress is being made by this company in a number of areas. The marketing and sales organization was reorganized to provide more effective coverage. A closer working relationship was established between their research personnel and your Company's research and development department at Philadelphia. This arrangement should prove beneficial in an era when rapid technological advances are being made in the refractory industry.

The new sea water plant of Quimica del Mar, S.A. approached completion in 1966, and began the start-up phase in the first quarter of 1967. Refractory grade magnesium oxide is being produced from sea water.

**Sea Water Plant**—A new sea water plant for the production of refractory grade magnesium oxide is the most advanced in the industry. The plant in Tampico, Mexico contains two of the largest all-metal rotary drum filters ever built. During the course of construction, the equipment design was improved to provide an even higher purity product, larger sea water pipes were installed doubling their capacity, and more powerful pumps were added to handle future growth plans. The plant is located on the Gulf of Mexico where there is a high concentration of sea water chemicals.





With a moderate additional investment, the plant will be capable of producing chemically active magnesium oxide and magnesium hydroxide as markets develop in the chemical, paper, sugar, rubber and other industries.

The plant contains a new sea water laboratory with specialized personnel and equipment.

Quimica del Mar, S. A. is a joint venture of General Refractories Company and a group of Mexican investors.

### Colombia

The sales and earnings of Empresa de Refractorios Colombianos, S. A. continue to grow to the point where an increased capacity is now being planned. General Refractories holds a 50% interest in this company which manufactures clay refractories.

### Argentina

The new plant of Cia. General de Refractorios de la Argentina, dedicated in 1965, is establishing itself as an important adjunct to the Argentine economy. With the support of an aggressive sales force, its products have enjoyed wide acceptance among cement manufacturers. Although the sale of refractories to steel manufacturers was slowed by government regulations, and established European suppliers, this situation has eased to the point where significant sales increases were made toward the end of 1966.

Grefar's refractories have proved very successful in large steel furnaces as well as for other applications. To provide a broad line of high quality refractories, imports of some special raw materials are made from Austria, Greece and the Philippines.

### Brazil

Brazil is the largest market for steel in South America. The economic growth of the country during the past three years has been greater than it had been for the previous eight years. Your Company has followed this development closely.

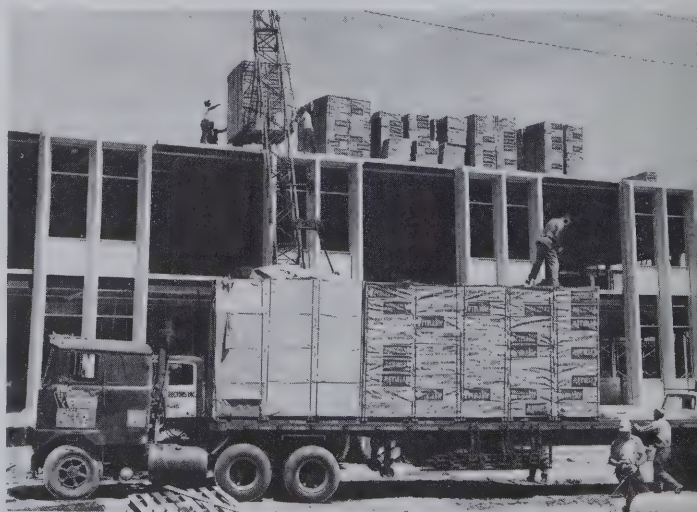
The Company's licensee in Sao Paulo is Ceramica Sao Caetano, S. A., one of the most important industrial concerns in Brazil.

A comprehensive study of the refractory needs of Brazil was undertaken during the year with a view to expanding your Company's interest in that country.



**Europe**—HERAKLITH is a flameproof, waterproof and soundproof building material produced from wood and specially processed magnesite. It is a remarkably versatile material with an established market in Europe and elsewhere.

**United States**—PERMALITE is a family of building products produced from perlite—a volcanic rock. It is non-combustible, moisture resistant and permanent. Although rigid and tough, it is easily and smoothly cut for a close, tight fit. It is marketed throughout the United States.





## Grefco Mining and Mineral Products Group

Sales and earnings of this new Group established new highs during 1966. Plans for the construction of two new plants were started. The expansion of other plants is being studied.

### Building Products Division

Despite a general decline of construction activity in the United States, sales of Permalite products established a record high. Acceptance by architects and builders of the lightweight, fireproof Permalite roof insulation board is evident in all markets where it is distributed.

To meet this growing demand, the construction of a new \$5,000,000 plant to produce Permalite perlite roof insulation board was started in 1966. Completion is expected in the Summer of 1967. This plant will serve the construction industry along the Eastern seaboard, freeing most of the output of the Florence, Kentucky plant for markets in the Midwest and South.

Palos Verdes stone, used as an ornament in building construction, is distributed to dealers not only in California, where it is produced, but also as far away as Louisiana and Michigan.

### Dicalite Division

Already a world leader in the production and sale of diatomite and perlite filteraids and fillers, this Division experienced new growth during 1966.

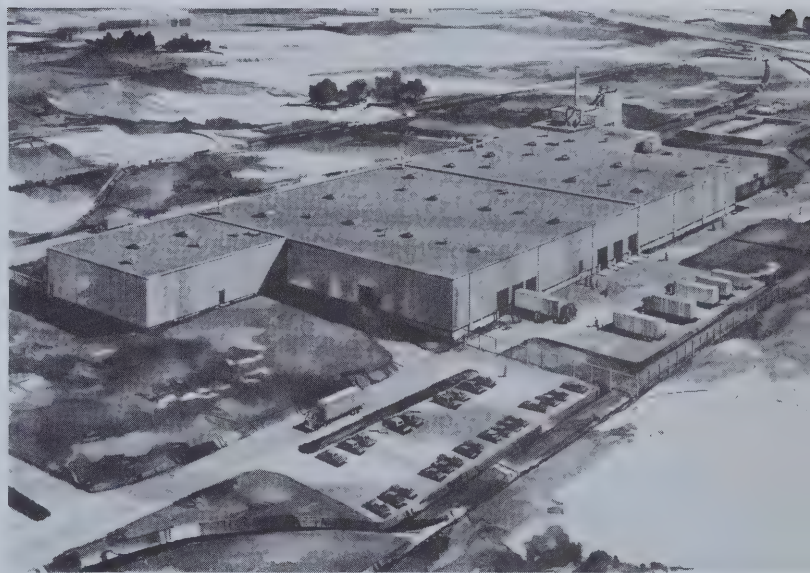
The Division's diatomite plants are located at Lompoc, California and Basalt, Nevada and its perlite filteraid plant is located at Antonito, Colorado.

Filteraids have a wide application in the purification by filtration of chemicals, antibiotics and other pharmaceuticals, food products, beverages and countless other materials. Fillers are used in the manufacture of paint, polishes, paper and as a conditioning or coating agent for ammonium nitrate fertilizer and as a natural insecticide. The major portion of the Division's paint fillers are manufactured as a by-product of the filteraid production at the Lompoc, California plant while the primary source for ammonium nitrate coating agent, insecticides and paper fillers is the Basalt, Nevada facility.

### International Division

In 1966, the Japanese government approved Grefco's plan to construct a new perlite filteraid plant near Tokyo. Engineering plans were completed and bids obtained during the year. Construction will be

**New Plant**—A new \$5,000,000 roof insulation board plant in South Brunswick Township, New Jersey is scheduled for completion in the Summer of 1967. The plant, which will supply the busy East Coast market, will provide quick truck and rail shipments.



started early in 1967 with completion scheduled later in the year.

This joint venture, known as Dicalite Orient Company, Ltd., is on a 50-50 basis between Grefco, Inc. and Mitsui Mining and Smelting Company. Output of this new plant will serve markets in Japan as well as Taiwan, The Philippines, Hong Kong, Korea and Malaysia.

Dicalite Europe Nord, S. A. is another perlite filteraid plant located at the Terneuzen Canal near Ghent, Belgium. Constructed in 1960, the plant is now approaching production capacity. Sufficient land has been purchased to permit not only plant expansion but other possible ventures. The markets covered are Northern Europe, including the United Kingdom and Scandinavia. Ownership is 75% Grefco, Inc., 25% Pasquinelli interests, also Grefco's partner in Italy.

In Corsico near Milan, Italy, the perlite filteraid plant of Dicalite Europe Sud, S.p.A. serves all of Italy as well as Southern Europe and the Near East. Because the plant is operating slightly above design capacity, expansion plans are being studied. This affiliate is owned 75% by the Pasquinelli interests and 25% by Grefco, Inc. Grefco has an option to purchase a 25% interest in a diatomite producing company, near Rome, recently acquired by the Pasquinelli interests.



## RESEARCH POINTS THE WAY

General Refractories' expanded research activities reflect management's determination to advance the Company's leadership position in a field which is undergoing rapid technological changes. Without an adequate program of applied and fundamental research, modern business cannot remain competitive.

A considerably reinforced contingent of scientists, engineers and technicians is now engaged in various phases of research and development within the Company. Research centers are maintained at

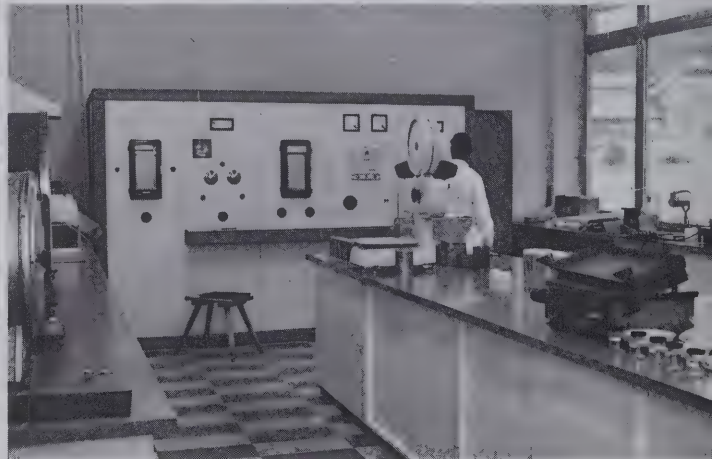
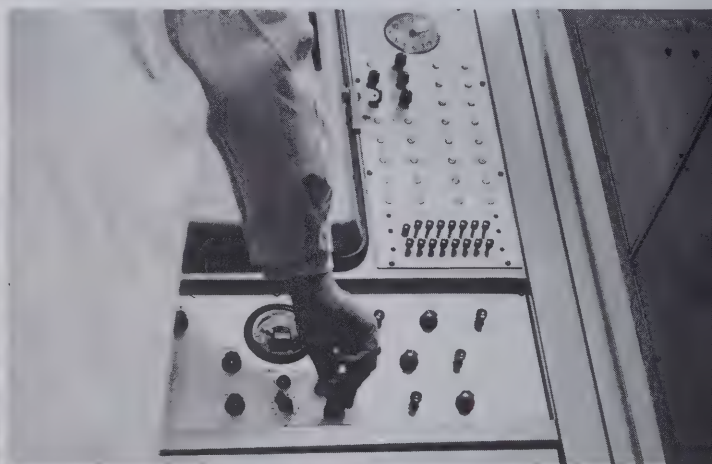
Philadelphia, Pennsylvania; Baltimore, Maryland; Radenthein, Austria; and Los Angeles, California. A new laboratory for sea water magnesite research has been established in Tampico, Mexico.

The Company occupies offices, laboratories and other work areas in the new \$5,000,000 Franklin Institute Research Laboratories building which is one of the largest in the country. At the Institute, your Company has access to a wide variety of highly sophisticated scientific equipment as well as the technical services supplied by a staff of some 300

**Baltimore**—This quantograph, used to simultaneously determine the many elemental components of oxides, is located in the Company's Baltimore laboratory—one of the largest of its kind in the world.



**Philadelphia**—At General Refractories Company's headquarters, Dr. John F. Burst, Director of Research and Development, coordinates a wide variety of scientific activities.



**Radenthein, Austria**—The Research Department of the European Division moved into its new and fully staffed and equipped facilities during 1966. Shown here is a section of one of the laboratories.

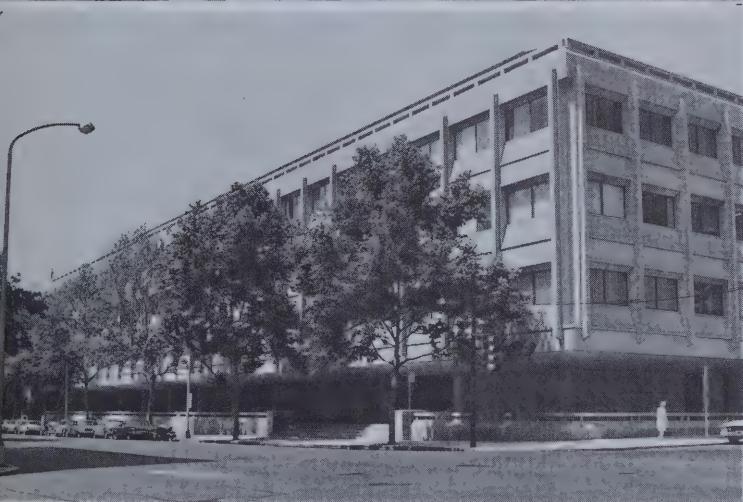
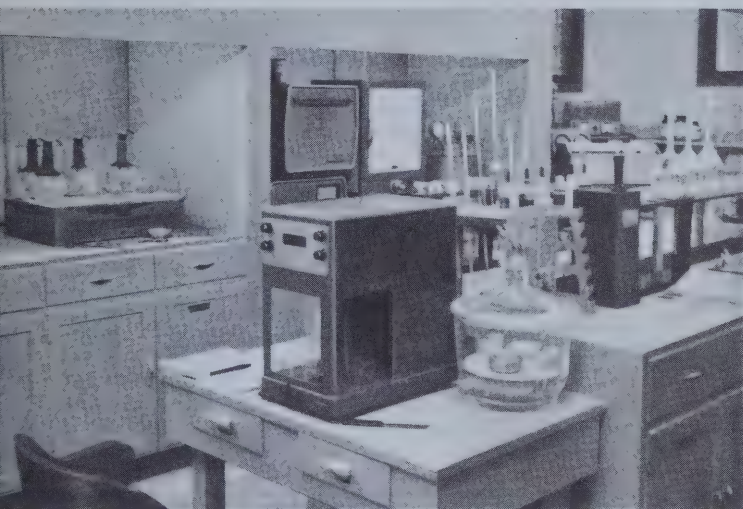


scientists and auxiliary personnel. The Company has its own team of scientists in residence.

The developments in science have been so vast that interdisciplinary programs involving chemistry, physics, metallurgy and other sciences must be carried forward if new growth and new discoveries are to be realized.

Contractual research agreements have been made with outstanding universities and other institutions. Clemson University is conducting theoretical studies to help analyze kinetic models of solid state

**Tampico**—A new laboratory to research the chemical properties of sea water for refractories and other products was established at the plant of Quimica del Mar, S. A. in Mexico during 1966.



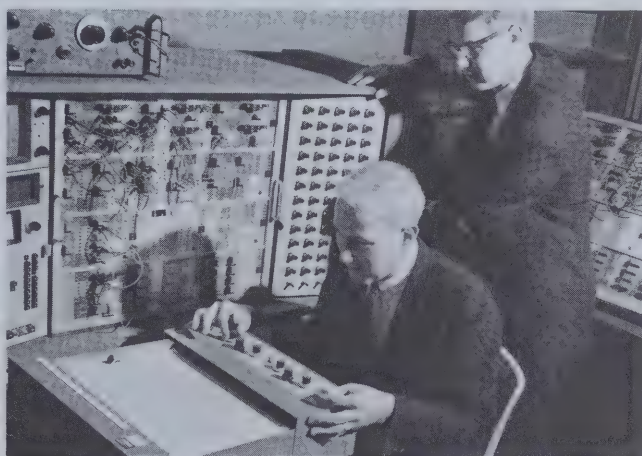
**Franklin Institute**—A special team of Company scientists work in the new \$5,000,000 Franklin Institute Research Laboratory. It is one of the most advanced research centers in the country.

reactions. At the IIT Research Institute in Chicago, your Company joined with seven other companies in a research program in the size reduction of particles.

Record progress in the introduction of new products during the past year attests to the fact that research efforts are being targeted on customer-oriented requirements. A close working relation between the marketing, engineering and research departments has been effected to advance the Company's competitive position.

General Refractories' scientists are involved in

**Clemson University**—This Analog Computer is used in analyzing kinetic models of solid state reactions. It is part of a special refractory project conducted by the Ceramic and Metallurgical Engineering Department at Clemson.



**Los Angeles**—Research on raw materials for building products, filters and fillers is conducted by scientists and technicians of Grefco Mining and Mineral Products Group in California.



## BOF - TODAY AND TOMORROW

some of the more dynamic areas of modern research. Refractories development, for example, requires experimentation at temperatures considerably in excess of 3000° F in order to characterize the effects of slag attack, corrosion, abrasion, load and thermal shock on their performance in steel furnaces.

The tremendous mineral resources present in sea water, and the difficulties of extracting them economically present exciting scientific challenges. In this technical area, the extraction of refractory grade magnesium oxide from sea water at the Company's plant in Tampico, Mexico opens up a whole new era for advanced product research.

Work on the fossil remains of aquatic plants called diatoms laid down from 100,000 to 15 million years ago, and perlite formed by volcanic action provide a special field of study for the Company's scientists who are developing filter-aids, fillers and building products.

Considerable effort is being devoted to the beneficiation of raw materials. The objective of this project is not only to develop materials better suited to product requirements but also to help counter high transportation charges in substitute materials from far distant points—thus helping to reduce costs.

Research on coal tar pitch furnishes another area for new product opportunities.

A greater scientific involvement in the field of market research also holds promise of progress. The challenges are exciting to scientists and businessmen alike.

General Refractories is creating a total research environment which is both stimulating and rewarding. The Philadelphia headquarters is situated amid a cluster of scientific centers, universities, and industrial research organizations in the Delaware Valley which, in itself, is generally conceded to be one of the four great regional scientific centers of the United States.

But the Company's research activities are not limited to the scientists and technicians who labor in the laboratories. In other areas of the Company's operations, different forms of research are conducted on equipment and manufacturing processes, on informational systems, on markets, on communication and other matters.

Research therefore plays an important part in General Refractories Company's efforts to advance its leadership position in industry.

Around the world, steelmaking is undergoing vast technological changes centered chiefly around the basic oxygen furnace method.

In this process, a supersonic jet of oxygen directed downward on the metallic bath provides the atmosphere for the rapid oxidation of the impurities in molten pig iron. The speed of the reaction brings about substantial savings in the cost of producing a ton of steel.

### High Temperatures

The BOF vessel turns out a batch of raw steel in less than an hour, against a typical time of six hours or more for open hearths. But the process generates extremely high temperatures, accelerated abrasion, and slag attack on the refractory walls.

To buffer this withering assault, General Refractories Company developed a line of Ferrox® refractories which is believed to be the best in the industry. In fact, during 1966 sales of Ferrox® tripled, attesting to its growing success in this important market.

The Ferrox® line was not produced overnight. For there was extensive research to be done, pilot programs completed, field trials made on customer furnaces, new facilities established, markets captured, and records set. And of course, there is the competition.

### How Ferrox® Works:

The ordinary refractory brick just can't take the punishment of a BOF furnace. But the skillful addition of selected coal tar pitches to combinations of magnesite does work. The coal tar pitch cokes when exposed to the hot molten metal. This feature increases the slag resistance of the brick and enhances its stability at high temperatures.

### Growth of BOF Method

In 1960, of a total world-wide production of 325 million metric tons of steel, only 12 million was produced in BOF furnaces. In 1965, of 501 million tons, it grew to 70 million. By 1970, of an estimated 640 million tons, it is expected that 320 million tons will be produced in basic oxygen furnaces. This is almost equivalent to the 1960 world-wide steel production. Acceptance of the process, therefore, is world-wide with growth rates paralleling that in the United States.





**A Basic Oxygen Furnace** is shown receiving a batch of molten metal for conversion into raw steel. A jet of oxygen is then directed downward into the metallic bath causing violent reactions at temperatures of approximately 3000° F. The Ferrox® brand of refractories has set industry records for the number of heats in these furnaces.



# GENERAL REFRACTORIES COMPANY AND SUBSIDIARIES

## CONSOLIDATED BALANCE SHEETS

December 31, 1966 and 1965

assets:	1966	1965
<b>Current:</b>		
Cash	\$ 5,704,876	\$ 6,296,180
Commercial paper, at cost	2,184,425	
Notes and accounts receivable, trade, less allowance (including other receivables: 1966, \$1,659,884; 1965, \$2,490,633)	19,496,982	18,606,313
Inventories, at lower of cost or market	43,986,339	35,536,089
Prepaid and other	976,071	1,042,882
Total current assets	<u>\$ 72,348,693</u>	<u>\$ 61,481,464</u>
<b>Investments, including advances:</b>		
50 per cent owned foreign companies at equity in net assets	4,866,723	4,857,300
Notes receivable, less current maturities	6,323,070	6,433,606
Other, principally associated companies, at cost, less allowance	3,628,119	3,803,435
	<u>\$ 14,817,912</u>	<u>\$ 15,094,341</u>
<b>Property, plant and equipment, at cost:</b>		
Land	2,865,772	2,882,868
Mineral lands	3,838,090	3,824,088
Plant and equipment	138,271,899	127,104,453
	144,975,761	133,811,409
Less accumulated depreciation and depletion and allowance for loss on abandonment and disposal	79,892,366	71,832,736
	<u>\$ 65,083,395</u>	<u>\$ 61,978,673</u>
<b>Other assets and deferred charges</b>	<u>\$ 7,156,735</u>	<u>\$ 5,816,285</u>
	<u>\$159,406,735</u>	<u>\$144,370,763</u>



**liabilities:****Current:**

Notes payable, including current maturities on long-term debt	\$ 4,776,774	\$ 2,634,631
Accounts payable, trade and other	12,964,662	7,626,689
Provision for federal, foreign and state income taxes	3,053,067	4,381,810
Accrued accounts	4,439,713	4,348,639
Total current liabilities	<u>\$ 25,234,216</u>	<u>\$ 18,991,769</u>

**Long-term debt**

\$ 27,911,723	\$ 18,195,666
---------------	---------------

**Reserves:**

Pensions and separation pay	8,095,078	5,759,598
Deferred income taxes	2,717,311	2,689,311
Other	337,764	547,766
	<u>\$ 11,150,153</u>	<u>\$ 8,996,675</u>

**Minority interests**

\$ 118,630	\$ 93,538
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**shareholders' equity:**

Common stock—\$5.00 par value—authorized 6,000,000 shares; issued 3,779,264 shares	18,896,320	18,896,320
Capital in excess of par value of common stock	18,490,605	18,157,058
Retained earnings	57,681,728	61,039,737
	<u>95,068,653</u>	<u>98,093,115</u>
Less treasury stock, at cost (1966—5,500 shares)	76,640	
	<u>\$ 94,992,013</u>	<u>\$ 98,093,115</u>
	<u>\$159,406,735</u>	<u>\$144,370,763</u>

See accompanying notes to consolidated financial statements.



# CONSOLIDATED STATEMENTS OF INCOME AND RETAINED EARNINGS

for the years 1966 and 1965

	1966	1965
<b>revenues:</b>		
Net sales	\$121,740,478	\$117,928,725
Other income, principally dividends, interest and royalties	2,656,281	2,153,563
	<u>124,396,759</u>	<u>120,082,288</u>
<b>costs, expenses and other deductions:</b>		
Materials, supplies, production labor and expenses	83,908,929	78,975,113
Selling, administrative and general expenses	18,183,696	16,330,978
Depreciation and depletion	7,904,000	7,020,723
Interest and other debt expense	1,772,606	1,234,696
Taxes other than income taxes	6,169,516	5,297,355
Federal, foreign and state income taxes	2,048,000	4,276,682
Minority interests	25,092	25,332
	<u>120,011,839</u>	<u>113,160,879</u>
NET INCOME	4,384,920	6,921,409
<b>retained earnings:</b>		
Beginning of year (including \$228,379 at January 1, 1965 for acquired companies accounted for as a pooling of interests)	61,039,737	56,776,647
	<u>65,424,657</u>	<u>63,698,056</u>
Net income of pooled division and domestic companies for two months ended December 31, 1965		238,066
	<u>65,424,657</u>	<u>63,936,122</u>
Allowance for loss on abandonment and disposal of property, plant and equipment and related pensions	3,800,000	
Cash dividends, \$.80 per share	2,855,011	2,349,811
Dividends of pooled companies prior to acquisition	936,412	11,760
Net income of the division included in consolidated net income	151,506	534,814
	<u>7,742,929</u>	<u>2,896,385</u>
RETAINED EARNINGS, END OF YEAR	<u>\$ 57,681,728</u>	<u>\$ 61,039,737</u>
See accompanying notes to consolidated financial statements.		



# CONSOLIDATED STATEMENTS OF SOURCE AND APPLICATION OF FUNDS

for the years 1966 and 1965

## funds provided by:

	1966	1965
Net income for the year	\$ 4,384,920	\$ 6,921,409
Add or (deduct) items not involving funds:		
Depreciation and depletion	7,904,000	7,020,723
Deferred income taxes	28,000	198,622
Equity in undistributed net income of 50 per cent owned foreign companies	(156,007)	(38,420)
Provision for noncurrent liabilities, principally pension, net of current maturities	535,480	684,768
Other	(177,815)	280,326
	<u>12,518,578</u>	<u>15,067,428</u>
 New long-term debt	 11,360,755	 237,180
Current maturities of long-term investments	540,830	1,501,095
Contribution to (withdrawal from) equity of pooled division prior to acquisition	<u>547,834</u>	<u>(817,239)</u>
Total funds provided	<u>\$24,967,997</u>	<u>\$15,988,464</u>

## funds applied to:

Acquisition of property, plant and equipment	12,926,082	10,467,920
Cash dividends	2,855,011	2,349,811
Dividends of pooled companies prior to acquisition	936,412	11,760
Purchase of treasury stock	76,640	—
Long-term investments, including advances	108,394	2,853,214
Reduction of long-term debt	1,644,698	1,743,310
Other assets and deferred charges	<u>1,795,978</u>	<u>3,530,430</u>
Total funds applied	<u>\$20,343,215</u>	<u>\$20,956,445</u>
INCREASE (DECREASE) IN WORKING CAPITAL	<u>\$ 4,624,782</u>	<u>(\$ 4,967,981)</u>

See accompanying notes to consolidated financial statements.



# NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

## 1. Principles of Consolidation:

The company consolidates the accounts of its majority-owned domestic and foreign subsidiaries and in such consolidation states its investments in fifty per cent owned foreign companies at equity in net assets. Amounts related to foreign subsidiaries and fifty per cent owned foreign companies have been converted into U.S. dollars at applicable rates of exchange. In consolidation, all significant intercompany transactions and unrealized amounts have been eliminated. Provision for U.S. income taxes on undistributed earnings of subsidiaries and fifty per cent owned companies has been made only to the extent of tax currently payable.

During 1966, the company acquired certain net assets of a division, net assets of two domestic companies and capital stock of certain foreign companies from Great Lakes Carbon Corporation (all of which were transferred to a newly formed subsidiary, Grefco, Inc.), in exchange for 842,000 shares of common stock of the company. For accounting purposes, the transaction has been treated as a pooling of interests. Accordingly, the financial statements include the accounts of Grefco, Inc. for the year 1966, and the year 1965 has been restated to give effect to the pooling. Under the pooling concept, net income attributable to the operations of the acquired division to the date of acquisition has been deducted from retained earnings and credited to capital in excess of par value.

A summary of the net assets of consolidated foreign subsidiaries (principally European) included in the accompanying financial statements is as follows:

	1966	1965
Net current assets	\$12,233,000	\$14,469,000
Net fixed assets	31,416,000	28,896,000
Net other noncurrent assets	3,994,000	6,060,000
Net assets	<u>\$47,643,000</u>	<u>\$49,425,000</u>

Consolidated retained earnings also include \$1,229,000 and \$1,073,000 of undistributed earnings of unconsolidated fifty per cent owned foreign companies at December 31, 1966 and 1965, respectively. Consolidated net income for the years 1966 and 1965 includes \$2,745,000 and \$4,292,000, respectively, attributable to foreign sources, a substantial portion of which has been received in the United States.

## 2. Federal Income Tax Liabilities:

Provisions for income taxes made in the accompanying statements of income give effect to reductions of \$2,000,000 and \$1,200,000 for 1966 and 1965, respectively, for foreign taxes paid in prior years and are deemed adequate. A definite determination of the company's federal income tax liabilities for years after 1960 is not now possible. The U.S. Treasury Department has not completed its examination of the company's tax returns for the years 1961 and 1962. The applicability of percentage depletion allowance to the minerals mined by the company is dependent upon regulations under the Internal Revenue Code of 1954, which have not yet been issued in final form. Further, the method of computing the company's foreign income tax credits for these years may be affected by the outcome of the company's claim

to recover approximately \$900,000 of additional federal income taxes and interest paid upon the partial disallowance of certain foreign tax credits for the years 1954 through 1960. The company has deferred for financial reporting purposes the related cost of these additional taxes and interest pending settlement of the aforementioned claim. A refund of \$750,000 to a foreign subsidiary resulting from the redetermination of prior years' taxes also remains deferred and not credited to income, since these taxes are part of the current claim.

In the event the company's position in respect to both the percentage depletion and foreign tax credit issues should not be sustained, consolidated net income for the years 1966 and 1965 would be decreased approximately \$500,000 and \$550,000, respectively. Consolidated net income for the other years subsequent to 1960 would not be materially affected in the aggregate.

## 3. Taxes:

The provision for federal, foreign and state income taxes as shown in the accompanying statements of income is composed of the following:

	1966	1965
Currently payable	\$2,020,000	\$4,102,060
Charge for deferred income taxes	28,000	198,622
Credit equivalent to income taxes applicable to gains on disposal of facilities, not credited to income		(24,000)
	<u>\$2,048,000</u>	<u>\$4,276,682</u>

Provision has been made for deferred federal income taxes applicable to differences (mainly depreciation and pensions) in reporting costs for book and tax purposes.

## 4. Long-term Debt:

Long-term debt due after one year is as follows:

	December 31,	
	1966	1965
Banks, 6 per cent payable in 1971	\$10,000,000	
Insurance companies, 5 <sup>3</sup> / <sub>8</sub> per cent payable \$1,250,000 annually	12,500,000	\$13,750,000
Mortgages and notes payable, principally foreign, due through 1986	2,156,225	972,000
Capitalized lease	3,255,498	3,473,666
	<u>\$27,911,723</u>	<u>\$18,195,666</u>

The loan agreements with banks and insurance companies contain certain restrictions on working capital, total liabilities and foreign investments and a limitation on the payment of cash dividends and stock transactions based upon earnings. Further, the retained earnings attributable to cer-



tain of the foreign subsidiaries are subject to restrictions by law respecting the payment of cash dividends. At December 31, 1966, approximately \$6,600,000 of the consolidated retained earnings were not so restricted.

Under the terms of a long-term lease with a municipality expiring in 1982 for land, buildings and equipment, the domestic subsidiary is committed to pay annual rentals of approximately \$410,000 through 1968, and \$345,000 thereafter, with options to purchase beginning in 1972 at the face amount of the applicable bonds then outstanding. For financial reporting purposes, this lease has been treated as a purchase and depreciation is being recognized over the estimated useful lives of the building and equipment. Accordingly, the aforementioned lease payments have been treated as being applicable first to interest, at the annual rate of  $4\frac{7}{8}$  per cent, and then to principal.

#### 5. Capital in Excess of Par Value of Common Stock:

The changes in capital in excess of par value of common stock of the company as included in the accompanying balance sheet are as follows:

	1966	1965
Beginning of year	\$18,157,058	\$17,814,937
Excess of net assets acquired (including net income of the division) over the par value of common stock issued and pooled retained earnings	680,847	342,121
Expenses relating to acquisition	(347,300)	
End of year	<u>\$18,490,605</u>	<u>\$18,157,058</u>

#### 6. Retirement Plans:

Pension costs under retirement plans for eligible salaried and hourly rated employees of the company and its domestic subsidiary were \$793,000 and \$817,000 in 1966 and 1965, respectively. These amounts consist of current service cost and interest on past service cost (except for a payment on past service cost for one plan in 1965), net of actuarial gains where applicable. Unfunded past service costs approximated \$6,600,000 at December 31, 1966.

Pension costs under retirement plans for certain foreign subsidiaries were \$849,000 and \$846,000 in 1966 and 1965, respectively. These amounts include an annual provision for estimated current and past service liabilities. Except for the Canadian subsidiary, none of these plans is being funded.

#### 7. Special Charge to Retained Earnings:

After a review by management, the Board of Directors decided that the allowance on abandonment and disposal of property, plant and equipment established in 1962 did not sufficiently take into account the impact of technological changes on the company's business. An additional amount of \$3,800,000 net of applicable income taxes, has been charged in 1966 to retained earnings to provide \$2,000,000 for further planned abandonments as well as \$1,800,000 for the related estimated pension funding requirements.

#### AUDITORS CERTIFICATE

To the Shareholders of  
General Refractories Company  
Philadelphia, Pa.

We have examined the consolidated financial statements of General Refractories Company and subsidiaries for the year ended December 31, 1966. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances. We also made a similar examination of the financial statements for the year ended December 31, 1965 which have been restated to reflect the acquisition of certain net assets and capital stock as described in Note 1 to the consolidated financial statements.

In our opinion, subject to the effect upon the consolidated statements of income of adjustments which may be required upon ultimate settlement of income tax liabilities, as explained in Note 2 to the consolidated financial statements, the accompanying consolidated balance sheets, consolidated statements of income and retained earnings and source and application of funds present fairly the financial position of General Refractories Company and subsidiaries at December 31, 1966 and 1965 and the results of their operations and the source and application of funds for the years then ended, in conformity with generally accepted accounting principles applied on a consistent basis.

Philadelphia, Pa.  
February 22, 1967

Lybrand, Ross Bros. & Montgomery  
Certified Public Accountants



## GENERAL REFRACTORIES COMPANY

United States Division  
1520 Locust Street, Philadelphia, Pa. 19102

### SALES OFFICES

Baltimore, Maryland  
Birmingham, Alabama  
Buffalo, New York  
Chicago, Illinois  
Cleveland, Ohio  
Detroit, Michigan  
Houston, Texas  
Lehi, Utah  
Los Angeles, California  
Middletown, Ohio  
New York, New York  
Philadelphia, Pennsylvania  
Pittsburgh, Pennsylvania  
St. Louis, Missouri

### WAREHOUSES

Avenel, New Jersey  
Chicago, Illinois  
Detroit, Michigan  
Los Angeles, California  
Philadelphia, Pennsylvania  
Troy, New York

### EXPORT SALES AGENTS

ARGENTINA—Curt Von Simson S.R.L.—Buenos Aires  
BELGIUM—Civ. Ing. Michel Culot—Courcelles  
BRAZIL—Ceramica São Caetano S.A.—São Paulo  
CANADA—Webster & Sons, Ltd.—Montreal  
Industrial Process Heat Engineering, Ltd.—Vancouver, B.C.  
The Winnipeg Supply & Fuel Company, Ltd.—Winnipeg, Manitoba  
CHILE—Carlos J. Ambor & Cía. Ltd.—Santiago  
COLOMBIA—Materiales Industriales, S.A.—Medellín  
COSTA RICA—Servicios Técnicos, S.A.—San José  
DENMARK—E.P. Kromann—Copenhagen  
DOMINICAN REPUBLIC—Alfarería Dominicana C. por A.—Santo Domingo  
FINLAND—O.Y. Tulenkestavat Tiilet A.B.—Helsinki  
FRANCE—Radex Heraklith—Paris  
FEDERAL REPUBLIC OF GERMANY—  
Deutsche Magnesit A.G.—Munich  
GREECE—Andrew C. Capayannides—Athens  
GUATEMALA—William M. Gamalero Sucs.—Guatemala City  
HOLLAND—Vereenigde Ertshandel Maatschappij N.V.—The Hague  
INDIA—General Commercial Corp.—Bombay  
ITALY—Radex Italiana, S.P.A.—Milan





## GENERAL REFRACTORIES COMPANY

### European Division

#### SUBSIDIARIES

AUSTRIA—Austro American Magnesite Company  
(OAMAG)—Radenthein, Carinthia  
GERMANY, FEDERAL REPUBLIC OF—Deutsche Magnesit,  
A. G.—Munich □ Deutsche Heraklith, A. G.—  
Simbach am Inn  
GREECE—Magnomin, A. G. (Branch)—Athens □  
Greek-American Mining Company, Athens  
LIECHTENSTEIN—General Magnesite Handels-Anstalt,  
Vaduz  
SWITZERLAND—Magnomin, A. G.—Zurich

#### AFFILIATES

GERMANY, FEDERAL REPUBLIC OF—Brohlta! A. G.  
(BROHLTAL)—Burgbrohl (Bez. Coblenz)  
Maerz Ofenbau G.m.b.H.—Dusseldorf  
SWITZERLAND—Maerz Ofenbau A. G.—Zurich

### Western Hemisphere Division

#### SUBSIDIARIES

ARGENTINA—Cia. General de Refractarios de la Argentina  
S.A.I.C. (GREFAR)—Buenos Aires  
CANADA—General Refractories Company of Canada Ltd.  
(GREFCAN)—Hamilton, Ontario

#### AFFILIATES

COLOMBIA—Empresa de Refractarios Colombianos S. A.  
(ERECOS)—Medellin  
MEXICO—General Refractories de Mexico S. A.  
(GREFMEX)—Ramos Arizpe, Coahuila □  
Quimica del Mar S. A. (QUIMAR)—Cd. Madero, Tamps.



## GENERAL REFRACTORIES COMPANY

Grefco, Inc.—Mining And Mineral Products Group  
630 Shatto Place, Los Angeles, California 90005

### SALES OFFICES

#### Building Products Division

Chicago, Illinois  
Cincinnati, Ohio  
McHenry, Illinois  
New York, New York  
South Bend, Indiana

#### Dicalite Division

Atlanta, Georgia  
Chicago, Illinois  
Boston, Massachusetts  
Cincinnati, Ohio  
Cleveland, Ohio  
Dallas, Texas  
Houston, Texas  
New Orleans, Louisiana  
New York, New York  
Philadelphia, Pennsylvania  
Portland, Oregon  
St. Louis, Missouri  
San Francisco, California

### SUBSIDIARIES

BELGIUM—Dicalite Europe Nord, S.A., Brussels  
MEXICO—Cia Minera Oriental, S.A., Mexico City  
□ Dicalite de Mexico, S.A., Mexico City

### AFFILIATES

ITALY—Dicalite Europe Sud, S.p.A., Milan  
JAPAN—Dicalite Orient Company, Ltd., Tokyo  
MEXICO—Materiales Carr, S.A., Mexico City





## **GENERAL REFRACTORIES COMPANY**

1520 Locust Street, Philadelphia, Pa. 19102